

University lews

A FORTNIGHTLY CHRONICLE OF HIGHER EDUCATION & RESEARCH JULY 1, 1980



Prof. W. M. Kalmegh, Vice-Chancellor of Nagpur University, honouring V. Shantaram with the degree of D. Litt. at the 69th convocation of the University in Nagpur.

CLASSIFIED ADVERTISEMENTS

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Notification No. 3/V/Advt./80

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Animal Husbandry
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UNIVERSITY NEWS

Vol. XVIII

JULY 1

No. 13

1980

A Fortnightly Chronicle **Price**
of Higher Education **80 Paise**

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of the Association*

Editor : ANJNI KUMAR

Science, Technology and Growth

M. N. Dastur

Today, the basic issues confronting both the developed and the developing countries are the uncertainties about the adequate availability of food and energy to meet the requirements of the growing world population and the urgent need to ensure a clean and healthy environment. There is now a new awareness about the 'social dimensions' of science and technology as well as the interdependence of technology, economic growth and social justice. The purely economic approach to growth measured in terms of gross national product (GNP) has given place to a multi-dimensional developmental approach specifically oriented towards the satisfaction of basic human needs, social justice and environmental harmony—the new growth indicators now known as the 'quality of life' index.

Technology is one of society's main sources of innovation and progress; and if it is to be an effective instrument of development and change, it should be specifically directed to perform its appointed tasks and to achieve the socio-economic goals. However, this will not take place automatically. The two essential elements are the political will to utilise technology and the socio-economic environment for its development.

While it is generally accepted that there are physical limits to growth in the very long-term context of the depletion of natural resources, progressive environmental degradation and rapidly expanding population, we need not be unduly pessimistic or alarmed about it. Science and technology keep opening new frontiers for mankind, enabling it to overcome the various constraints to growth.

In fact, science and technology represent an unlimited resources of human ingenuity to find viable solutions to a complexity of problems. They are instrumental in expanding the limits of man's resources. This expansion of limits is not just confined to minerals: it extends to food, goods and services; transport and communications; and human habitation and environmental improvement. Even as technology has enabled the extensive development and efficient use of conventional resources from the biosphere to meet the human requirements, it can be reasonably expected to devise methods for the extraction and conversion of hitherto unexploited and unknown materials into new resources for bettering man's condition.

The 'limits to growth' philosophy is based on the assumption that the limited available natural resources and ecology impose a near-term time limit to our ability to continue obtaining materials from the earth to sustain the food and other requirements

of the growing population; and also to safely manage and dispose of the hazardous wastes of growing industries. Science/technology has pushed back and diffused these limits to growth.

The advanced countries need to be more concerned with abating their environmental pollution and in reducing the socio-economic stresses induced by their system. In the case of developing countries, however, the most pressing needs are the provision of the basic necessities of life for the masses and rapid economic progress through the development of national resources with the increased application of science and technology, to sustain the expanding population and to bring about a more equitable distribution of the national product.

Our problems of growth for the future should be viewed in this perspective. The growth situation is not all that alarming, judging from the conclusions of the recent Interfutures research study entitled 'Facing the Future' sponsored by the Organisation for Economic Cooperation and Development (OECD). The report concludes that the growth of the countries of the world taken as a whole can continue during the next half-century without encountering long-term physical limits. However, the study cautions that in all probability, all countries will experience a difficult and long period of transition in their relations with the ecosphere. This transitional phase will be marked by problems occasioned by constraints on physical availability of materials closely linked with economic and social constraints as well as socio-political challenges. Thus, the transition to stable populations may not be achieved solely by family planning techniques, but will demand a more fundamental change in motivations brought about by economic, cultural and social developments. As regards agriculture, the main transitional problem will be the development and introduction of agro-systems that are resilient in the long-term and which do not result in the degradation of arable land or increased resistance to insecticides or water pollution. With respect to technology, the directions towards which it is already moving, present numerous possibilities for the future.

In respect of raw materials, the future problems are likely to be the development of techniques for mining low-grade ores; the working of deep or remote mines rehabilitation of mine land; institutional questions relating to the law of the sea and development of technologies for exploiting the sea-bed; the quest for industrial processes to substitute materials in plentiful supply for those which are more scarce; and adequate investment in the raw materials sector.

As regards energy, three broad avenues are open, namely :

- (i) conservation and efficient use of energy;
- (ii) the substitution of coal and nuclear energy for oil; and
- (iii) the development of new renewable sources of energy.

At present one cannot but be deeply concerned by

the uncertain energy future. The world energy scenario developed by the International Energy Agency is quite revealing in this respect. Even after assuming a moderate economic growth, improved energy efficiency, higher OPEC production, doubling the use of coal and substantial increase in nuclear energy, there may still be a sizable energy gap in the coming decade. The development of nuclear energy is considered indispensable to bridge this energy gap. This emphasizes the need to raise public morale regarding safety and especially long-term safe disposal of wastes, before nuclear energy becomes more widely used. If the present misgivings and uncertainty about nuclear power were to continue, the total world energy gap may further widen to around 45 million barrels of oil per day by 2000 A.D.

In this situation, the efficient use of energy is of crucial importance, simultaneously with conservation measures. It is estimated that with more efficient use of energy by all sectors including industrial, residential and transport on a world-wide basis, substantial savings can be effected. The industrial sector which accounts for about 40 per cent of all energy used, has already made significant savings, in the wake of the rising energy costs.

The adverse effects of the world-wide energy crisis are being acutely felt by all non-oil producing nations including India which imports about two-thirds of its crude oil requirements at present. Therefore, coal as an energy source has assumed special significance. India is fairly well placed in this respect and the estimated reserve of about 90,000 million tons of non-coking coal will be adequate to meet India's energy requirements for the next century or two, even at higher rates of exploitation.

Coal is used for thermal power generation and for meeting other fuel requirements. However, even with the best conventional thermal plant, conversion efficiency is less than 40 per cent. Therefore, new methods of energy conversion for improving the efficiency are being developed.

The most notable is the combined magneto-hydrodynamics (MHD)-steam power generation cycle. With this technology, it is estimated that conversion efficiency can be raised by another 15 per cent to 50-55 per cent, thus reducing substantially the coal consumption and also thermal and waste gas pollution. As a result of the intensive development work on MHD in progress in the advanced countries, it is expected that the combined MHD-steam cycle will be ready for large-scale economic exploitation within the next decade. So far as India is concerned, the experience gained in the experimental coal-based MHD power plant being set up jointly by BARC and BHEL at the BHEL complex at Tiruchirapalli may well usher a new era in India's power generation and potential.

India has already made excellent progress in nuclear technology, starting from scratch. In fact, the efforts of Dr. Homi Bhabha for self-reliance in this field have paid off. The Jadugoda Uranium Mill and the Nuclear Fuels Complex at Hyderabad are

entirely the work of Indian scientists and engineers. Also, India is the only developing country to have established facilities for the complete nuclear fuel cycle starting with uranium exploration, mining, extraction and conversion through fuel fabrication, heavy water production and reactors to reprocessing of spent fuel and waste management and disposal. Technologically speaking, therefore, India is in a position to establish a chain of nuclear power stations, which can successfully tackle the mounting energy crisis. The prospects for nuclear power generation in India will further brighten with the success of the experimental fast breeder reactor station being set up at Kalpakkam. If fission fuel can be produced from thorium by the fast breeder cycle, the prospect of increasing our nuclear power generation is assured, because India has one of the largest resources of thorium mineral in the monazite deposits of beach sands in Kerala and other places. Also, power generation by controlled nuclear fusion apart from its greater efficiency may hold less radiation and waste disposal hazards than nuclear fission.

In contrast to all other sources of power, solar energy is both pollution free, safe and inexhaustible. There is a world-wide realisation that in spite of the formidable problems of low intensity, intermittent availability and difficult storage, solar energy may yet prove to be a reliable source. In India, development work is in progress on solar grain dryers, water heating system, solar power cold storage systems etc. Direct conversion to electric energy by photovoltaic solar cells would appear to offer the maximum advantage for a tropical country like India with many hours of sun light of greater intensity, distributed more uniformly throughout the year, than in temperate zones. It was recently reported that the prototype of new silicon photovoltaic cell developed by Central Electronics Ltd is currently undergoing field trials in the villages of Rajasthan.

A recent development which presents great possibilities under Indian conditions, is the solar pond concept for the economic conversion of solar energy using a body of water as an inexpensive medium not only for collecting but storing this energy. The concept is based on the prevention of natural convection in the water by the density-gradient in the water due to dissolved salts, as in sea water. A solar pond of only one square kilometer would produce about 40 million kWh a year, the equivalent of a 5000 kW power plant. Used as a heat source, the solar pond is even more attractive, and one square kilometer would annually yield the heat equivalent of 50,000 tons of fuel oil. Another advantage of the density-gradient solar pond is the possibility of its use simultaneously for the desalination of water to produce fresh water and by-product salts. Israel, the innovator of this technology, is planning to generate 2000 megawatts of electricity from the Dead Sea by the year 2000 A.D.

Advanced countries like the USA and the USSR are already thinking in terms of space shuttles, factories in space and satellite power system. If the space programmes move according to schedule, by the next decade space shuttles may be expected to

carry technicians, assemblers, machinery and factory components into orbit, to build factories, power plants, observatories and laboratories in space.

The products that can be manufactured in space under near perfect vacuum, zero gravity conditions are fascinating. To mention only a few, perfect crystals for the electronics industry; ultrapure glass for laser transmissions; defect-free, long life metals for the turbine industry; immiscible materials fused together to produce new materials such as steel-and-glass etc.

But the most astounding development may be the satellite power system which can generate electrical power in space and transmit it as microwaves to a receiving station on earth directly below, where they will be converted to electricity for distribution by conventional power distribution system.

India has to travel a long way to achieve this sophistication in space and energy technology, particularly in view of the enormous resources and sophistication in electronic and computer technology required for this type of research. However, the country has already made a good beginning in space technology and solar power generation.

Electronics technology has witnessed a veritable revolution with the discovery of semi-conductors and the invention of the transistors and the integrated circuits. These innovations drastically reduced the size, cost and power consumption of any equipment in which they were used. This in turn led to the developments of a new generation of desk-size computers. The culminating innovation was the revolutionary microprocessor developed in the sixties, in which all the arithmetic and logic circuitry of a computer was crowded into one tiny silicon chip, with the input and output programming units on separate chips.

With new developments following in rapid succession, the processor function has been extended by adding a memory to the same single-chip and micro-computers have now come into use. One of the difficulties experienced in modern high speed computers with semi-conductor technology is the generation of heat in the circuitry, which set a limit to the development of midget supercomputers. However, the new Josephson technology of high performance processors using the phenomenon of superconductivity of metal alloys cooled to the temperature of liquid helium, holds promise of being able to take over from silicon and other semi-conductors, combining smallness with very high speed and extremely low heat dissipation. The development of this technology may pave the way to the supercomputer of tomorrow which will be very small and incredibly fast—in fact comparable to the size of the human brain and perhaps more infallible in logic and computation.

The development of computers and the rapid advances in computer technology have provided the engineer and the scientist with a fast and reliable engineering tool not only for rapid problem solving but expeditious information processing and communication. There has been 'information explosion' in the wake of the rapidly changing technology and

industrial and economic developments, which the conventional library information and documentation services are totally inadequate to handle. This has led to the development of newer systems of collection, storage, retrieval and dissemination of information. The key element of this system of information management is the computer. As the information machine of the future, it will permit not only mass storage of information in the language of bits, but speedy access to all kinds of information-gathering capabilities and its expeditious dissemination.

The rapid interchange of information will be further facilitated by the recent advances in communications technology through the deployment of optical techniques using glass fibres and lasers. Theoretically, a single glass fibre teamed with a laser can transmit the full 30 volumes of the Encyclopaedia Britannica in one-tenth of a second. Moreover, the computer of the future is expected to respond to speech and to read pictures and symbols by pattern recognition logic as well write them more rapidly than ever. These developments will not only provide the scientists and technologists access to worldwide information, but assist them how best to use them in a given situation.

The rapid technological advances in recent years have presented many a challenge and opportunity to Indian technologists to find practical solutions to a number of problems in the context of these developments. The newer fields of engineering such as aerospace, nuclear and other methods of power generation, electronics, oceanography, desalination etc. have also stimulated the demand for new materials. This has led to the development of a new class of materials such as titanium, magnesium and aluminium alloys, special steels and superalloys, cermets and composites.

To meet the high standard of quality requirements, accuracy and reliability of performance of both conventional and new materials, a new technological discipline called 'Materials Science' was introduced about two decades ago. No doubt, the physicist, the chemist and the metallurgist in their own specific ways study materials scientifically; but materials science encompasses all these disciplines to evolve a more cohesive and critical understanding of materials and their properties, based on atomic structure and fundamental principles of atomic and molecular bonding. It covers all materials—metals, glasses and ceramics, polymers, composites etc; and all properties—mechanical, electrical and magnetic. This unified and inter-disciplinary approach to the study of metals and materials has immensely widened the horizons for the materials-scientist and the engineer.

Many national issues of today such as energy policy, development of national resources, choice of technology for industrial projects, development and encouragement to indigenous technology, technology imports, science and technology policy, engineering education, environmental protection etc. concern the technologists in some way or other. They have a recognised and essential role to play in the

identification of the issues and investigation of the complex ways in which technological aspects interact with economic, social, political, ethical and other factors.

In a democratic set-up, it is perhaps inevitable that sometimes the politicians may be tempted to make short-term decisions which are popular, rather than long-term decisions of national importance where immediate benefits may be less obvious. This type of approach to vital national issues involving technology can be extremely frustrating to an engineer who has been trained to seek and examine technological and economic facts and then come to conclusions based on these facts. However, it is not always easy to convince the bureaucrat on matters of technology. There is, therefore, a vital need for increased technology/government/public interface for a meaningful communication and exchange of ideas and facts. This will lead to a better understanding of the techno-economic issues, the social needs and national objectives, for decision-making.

In the context of the rapid technological advances, engineers who are key figures in the technological innovation and progress, are themselves subject to technical obsolescence. The need for continuing education to keep abreast of technical developments is therefore imperative. The formal education one receives in a technical institution is only the beginning of a life-time of learning. The engineer has to plough back a part of his time to this business of continuing education. The need for additional training to keep engineers up-to-date is being increasingly recognised and industry is paying more attention and investing more money on continuing training programmes. Progressive industrial firms encourage their employees to take these specialised training programmes or sandwich courses in the relevant fields.

(Excerpts from the Convocation Address delivered at the Institute of Technology of the Banaras Hindu University)

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University Libraries in Karnataka

The library as an organised institution, right from its inception made available to a larger community the knowledge of a few scholars.

In the past readers visiting the library were left to themselves to gather the information they wanted from the available resources within the four walls of the library by their own efforts. The proliferation of publications both in size and scope, the advent of a variety of newer media available for collecting and disseminating information, the growing specialisation in various disciplines and providing materials for the interdisciplinary nature of research have all contributed in creating a complex situation in organising libraries for the benefit of users.

In the changed situation librarians are called upon to have effective control over the scattered and varied resources by adopting appropriate bibliographic apparatus which can permit the users to retrieve the information the way they want and when they want. The modern librarianship essentially depends upon availing the benefits of modern technology which has provided viable and swift communication aiming to conquer time and space.

The motto of any library is not to remain as store-house of unwanted materials, but to operate as a dynamic instrument of education. To achieve this objective the need of the hour is to adopt new structural arrangements based on comprehensive planning to meet the needs of clientele who tend to expect more active assistance in current awareness, location of materials and supply of documents with utmost speed and economy.

In any planned programme for development of university libraries, one must take into consideration three major aspects, viz. building library resources, providing competent professional and non-professional staff and establishing co-operation and co-ordination among libraries after taking into consideration the present strength of students and anticipated strength, existing departments and new departments, on going research and future research projects.

With the constraints of scarce finance and other resources now felt, building a worthwhile library, appropriate to the teaching and research requirements of scholars, is no easy task. In a modern university library, collection consists of well-chosen primary and secondary sources of information including special materials, such as, micro-documents, gramophone records, tapes, photographs, charts etc. Selection of these materials should be planned systematically in accordance with well-defined policies and procedure.

As the Education Commission pointed out, "A collection of books, even a collection of good books, does not constitute a 'library'. Given enthusiastic teachers 'who can teach with books', and librarians

who can co-operate with them in converting the library into an intellectual workshop, even a comparatively small collection of sensitively chosen books may work wonders in the life of students".

When new universities are being planned at Gulbarga and Mangalore, it would be worthwhile that they learn from the experience of older universities and not repeat the mistakes committed in assembling vast resources which are scarcely used due to various reasons, which could only end in huge amounts being invested without bringing commensurate benefits. The new university libraries should give priority in collecting and maintaining books and other materials for which immediate access is vital for intellectual activities. Experienced university librarians should be associated right from the beginning as consultants in building up core collections.

For swift communication, steps should be taken to link existing [and proposed university libraries through telex. In the initial stages many scholars and students who are engaged in research and specialised studies have to depend upon well-established university libraries. Such scholars may be encouraged to visit these libraries by providing suitable incentives such as travel grants and special leave etc.

The Education Commission states: "No new university, college or department should be set up without taking into account its library needs in terms of staff, books, journals space etc." It goes to the credit of the one-man commission appointed by the Government of Karnataka for having accepted this principle while making recommendations for development of libraries in the proposed universities.

To start with adequate budgetary provisions have been indicated for purchase of books and journals and provision has also been made for the appointment of library staff. For each of the university there is a budget proposal of Rs 35,00,000 for purchase of books and journals in addition to Rs 2,75,382 being annual expenditure on salaries of library staff. The staff pattern for each of the proposed university consists of one librarian, one deputy librarian, one documentation officer, four assistant librarians, six library assistants, one superintendent, eight typists-cum-clerks and four attenders, binders, etc.

In particular, the commission has highlighted the need for having modern reprographic facilities at the new university libraries. Based on the survey specially to be conducted for assessing the service potentialities of the existing college libraries and institutions where discipline specialisation already exists, an integrated library system is proposed under the overall control of the Central University

Library so that both post-graduate and undergraduate students could avail of the library facilities. The Commission's recommendation when implemented, will constitute a first step in resources sharing among the academic libraries in Karnataka and sets a new trend for future development of university libraries.

In any scheme of developmental activities, the selection of a highly qualified library staff should receive immediate attention, since the development of university libraries as an active instructional agency needs men and women of high intellectual calibre and professional competence. It is, therefore, necessary to give academic status to professional librarians at par with the faculty in terms of status, salaries and privileges. This is one way to attract really talented persons to manage libraries on a sound footing. For the library staff who are already on the job, there should be a provision to arrange in-service training continuously in order to promote and facilitate their professional growth.

It is proved beyond doubt that no single library can even boast to be self-sufficient in terms of resources and services—not even the British Museum Library or the Library of Congress. Hence, it is necessary to encourage deliberate co-operation and co-ordination between the existing university libraries and the new ones in order to establish a close rapport between the universities in the service they have to render. Generally in the Indian context, resource sharing is mainly confined to inter-library loan system which forms just a part of the resource sharing. In practice, there is wider scope in pooling the resources and services of all types of libraries and information centres to meet the needs of the readers more efficiently as well as economically.

There are four important areas where it is possible to establish effective resource sharing capabilities depending upon local and national needs : (1) in the field of acquisition activities either area-wise or discipline-wise on the pattern of Farmington plan, originated by the Association of Research Libraries in US to procure foreign books on methodical and rational basis throughout the country. On similar lines, recently national libraries of Scandinavian countries—Denmark, Finland, Norway and Sweden—have entered into an agreement on the distribution of scientific literature among the main libraries of the participating countries ; (2) in establishing co-operative and centralised cataloguing where books and other materials are centrally processed and made available to other libraries. An outstanding example in this connection is Machine Readable Catalogue (MARC) Project; (3) in establishing depository centres of either less used or costly documents and making such documents available to the respective readers avoiding unnecessary duplications, on the pattern of the Midwest Inter Library Centre and (4) in establishing a regional computer centre involving co-operation between libraries of different types on the model of Birmingham Libraries Co-operative Mechanisation Project (BLCMP), or to use shared computer on the

model of the South West Academic Libraries Co-operative Automation Project (SWALCAP).

There are many more interesting and novel projects both at national and international levels in resource sharing but we can only plan such schemes that will suit our local conditions, based on appropriate technology easily available with us.

Taking into consideration the utility from the point of economy and efficiency it is expedient to appoint a high-powered committee under the chairmanship of the State Education Minister and participating librarians as members to find out ways and means of establishing effective co-operation and co-ordination of resource sharing in these universities, both on voluntary basis and by means of directions given by the funding authorities such as State Government and the University Grants Commission. On the recommendation of such a committee, policy and programmes should be drawn to establish an "Academic Library System in Karnataka", which will work in the following manner.

There should be an overall system to co-ordinate the library activities of all academic libraries. Such a system may be named as "The Academic Library System in Karnataka". Then there should be a sub-system within each university. This may be called the university system named after particular university. In the subsystem the university library is expected to co-ordinate the library activities of the various departments and constituent colleges. It should be the responsibility of the university librarian to inspect and advise from time to time the development of college libraries and ensure that each constituent college establishes effective library service to meet the demands of the undergraduate teachers and students.

Public libraries in Karnataka are still in a developing stage, in terms of resources and service and the time is ripe to have a public library system, at this stage of development. As far as special libraries are concerned efforts are being made to establish a national system through the efforts of NISSAT (National Information System for Science and Technology) and it would be proper for special libraries in the State to join the mainstream and benefit thereby from the National Library System. Thus in due course of time, it is envisaged that there will be three systems, namely, (a) The Academic Library System; (b) The Public Library System; and (c) The Special Library System. When these three systems become operative there will be scope for interaction between these systems to their mutual advantage and thus increase resources sharing capabilities among libraries in Karnataka.

Though in theory, the resource sharing activities are well known and many national and international programmes have been initiated in practice many of such projects have remained ineffective due to lack of sustained efforts on the part of the fund giving authorities and due to lack of dynamic leadership.

(Continued on page 364)

Educational Production Centres

O. S. Dewal*

Some people think that Lord Macaulay still guides Indian education from his grave. Educational waters, since 1857, are certainly not standing still and stagnating.

Much has changed. Changes can be seen distinctly in six areas. The government and the voluntary bodies have helped in the extension of education. The structure of education has changed from high school to higher secondary, to ten plus two schooling. The curriculum is made relevant to the learner's needs. The media and methods of teaching are also undergoing changes, of course slowly. Evaluation which was subject-one-shot-once-a-year affair is becoming objective, comprehensive and a continuous process.

Although there is no need for pessimism and pathological cynicism, one cannot remain complacent. There are many things which we should do, and do urgently. A few things are well known. We should universalise elementary education, undertake boldly adult education and make the curriculum environment based. Our progress is not disappointing but the target is still far off.

As compared to the 1947 figures, the number of universities in 1975 increased by eight times, high schools by eleven times, middle schools by ten times, and primary schools by four times. Similarly there is a colossal increase in the student enrolment from 35 per cent to 86 per cent at the primary level, from 9 per cent to 38 per cent at the middle stage, and 4 per cent to 22 per cent at the secondary stage.

This rosy picture immediately turns pale the moment we see that out of the total outlay on education, 61 per cent was devoted to school education which could only keep in the secondary school system 22 per cent of the total student population of that age group. If we want to have 50 per cent enrolment at the secondary level, we will have to spend the total outlay on school education and more only on secondary education. This is not feasible.

One of the things which has come to be realised recently is that formal institutionalised systems cannot help achieve our goals. Frantic efforts need to be done to explore alternative strategies. We have to resort to non-formal systems to realise educational targets. Attempts made so far are rather slow.

The point that if education is to be extended throughout the life of the learner, it should go and knock at the door of the learner is overlooked. We need

to look hard at our existing system. Can we produce relevant, need-based instructional material with local colour? Do we have a sound distribution system?

The above questions call for the setting up of educational production centres all over the country. Verily it should be the task of the Eighties. As social, economical, and cultural, realities change, we should evolve new, innovative and responsive models. There is a sizable number of learners who can read and write and are keen to improve their technical and professional competence. They want to broaden their general interests and improve their vocational skills. They want to read some relevant material on the topic of their utility or interest. But they are kept educationally hungry as such material which can satisfy their educational thrust, either does not exist or is not readily available or is exorbitantly priced. The answer to this problem is to set up district education centres which will produce such material and sell it on a no-profit-no-loss basis.

How to go about it? The programme to me involves these activities, identifying areas on the basis of the needs of the learners, producing material using local talent and local resources, and developing the basic infrastructure for distribution.

It is my hunch that if small booklets on child care, nutrition, how to start poultry, how to get bank loans, etc. are prepared at the Panchayat/District level with the help of local experts, local resources, with local colour, local illustrations and distributed on time, people will appreciate the move. There is a will on the part of the adult learners but there is a chronic shortage of such reading materials. Where material is available, it is not distributed properly. Very often much literature either is used (shown) on ceremonial occasions or is piled up in office stores.

To test the feasibility of this idea it should be taken up as a pilot project in a district. The steps involved are: undertaking a survey to find out how many people feel a need to have need-based education material; what the important topics are on which the educational material should be developed; and what is the priority; setting up a Panchayat/Education District Samiti; spotting the local talent; producing with the help of local resources and printing the reading material; pricing it suitably; developing an infrastructure for distribution; actual distribution; obtaining feedback on utilisation; and on the basis of the feedback, making the necessary changes.

*Director, Open School, CBSE, New Delhi.

Tenure extension for teacher fellows

The University Grants Commission has worked out a detailed procedure for consideration of proposals for tenure extension from teacher fellows. The proposals for extension upto a period of six months for completing project work for M. Phil or Ph.D. thesis can be considered on the merit of each case by the Centre / Department concerned provided the teacher fellow concerned has not been on leave beyond the period permissible under rules and that the number of teacher fellows including those whom extension is given by the Centre/Department does in no case exceed the number of teacher fellowships allocated to the Centre/Department concerned at any given time. Proposals for extension of long term fellowships could be considered in special cases upto a period of one year beyond three years. Such cases should be considered by the Centre/Department well in advance and the decision taken at least three months before the expiry of the normal tenure of the teacher fellow and communicated to the college where the teacher is employed so that the college could decide about continuation or otherwise of the services of the substitute appointed in place of the teacher fellow concerned. The Centre/Department should also ensure that the teacher concerned completes his Ph.D. thesis/project work for M. Phil within the extended period.

As regards teacher fellowships awarded directly by the Commission, proposals from the holders for extension may be sent to the Commission by the concerned department through the university for consideration along with the following documents well in advance so that they reach the Commission's office at least three months before the expiry of the tenure of the teacher fellow concerned.

- (a) A report giving details of the work already done by the teacher fellow indicating the list of publications if any during the tenure of the teacher fellowship.
- (b) Specific reasons on account of which the fellow could not complete the work within the normal tenure.
- (c) Details of work to be done during the extended period along with an assurance that the Ph.D. thesis/project work for M.Phil would be completed during the period for which the extension is being sought.
- (d) Specific recommendations of the Supervisor and Head of the Department/Centre concerned on the proposal of the teacher fellow for extension of his tenure.

Proposals for extension in the case of teacher fellowships awarded under the scheme of development of undergraduate education may be sent by the college where the teacher is employed well in advance for consideration by the Commission so that it reaches the Commission's office at least three months before the expiry of the fellowship tenure along with the documents mentioned above and the recommendations of the Principal of the College.

New UGC aid pattern

Prof Satish Chandra, Chairman, University Grants Commission, said in Trivandrum that during the Sixth Plan the universities in the country would be brought in three categories according to the stage of their development for UGC assistance. The categories would be 'developed', 'developing' and 'yet to be developed'. While addressing the valedictory function of the State Conference of University Teachers' Federation, Prof. Satish Chandra said the UGC had informed the Planning Commission

of the need for a better funding system and expressed the hope that the availability of funds for higher education would be better during the Sixth Plan. He said under the new system allocation of grants for general development would be less for the universities in the developed category. Funds for such universities would be mainly for undertaking quality research. He said about 24 universities could be termed as developed and about 60 as developing. The efforts of the UGC during the Sixth Plan would be to raise the level of at least one third of the universities in the developing category to that of the developed. The categorisation would not however be an impediment to any university in getting assistance for the quality research. Stressing the need for carrying out fundamental research, Prof. Satish Chandra said priority areas for research varied from State to State depending on local conditions. Kerala for instance could concentrate on areas like sea erosion, forestry and fisheries which were of vital interest to the State. Referring to the demand of college teachers for UGC scales of pay, Prof Chandra said the demand for higher pay scales should be combined with efforts for a meaningful change in the educational system.

Medical brain drain

According to the World Health Organisation, India is the world's largest donor of medical manpower. An estimated 15,000 Indian MDs are working abroad and there is scarcely a recipient country in the world where there are no Indian physicians. The Philippines is the second largest donor. According to the study in the early 1970s about 1,40,000 physicians were working outside their countries of origin.

There were about 77,000 migrant physicians in the USA, 21,000 in the UK, 11,000 in Canada, 6,000 in West Germany and 4,000 in Australia. About 5% of all the world's nurses are estimated to be outside their countries of origin and each year 15,000 nurses migrate. The number one donor country of

nurses is the Philippines. The money spent on the education of these migrant physicians would have been better spent on other forms of health personnel and health care. The study contends that the responsibility for the brain drain rests equally upon the rich recipient and the poor donors. According to the study, developing countries turn out more MDs than they can afford to employ. The situation is just the reverse in the developed countries. Migration is therefore inevitable for at its root is supply and demand.

According to the WHO study India with per capita income of about 120 dollars and a growth rate of 1.5 per cent really could afford only 35,000 physicians. The study notes that the number of physicians in India in 1972 was about 1,35,000. As the vast majority of Indians cannot possibly pay for private care, about 80,000 to 100,000 physicians were surplus in India. The drain on a country is not so much in the loss of brain but in the money put into the education of physicians who unable to find employment at home seek it elsewhere. To help manage the migratory flow the study has advised the health authorities to (1) produce just as many doctors as the country can afford; (2) plans for numbers and categories of health personnel; and (3) match the education and training programme to the country's priorities.

Withholding of passports, banning foreign qualifications and forcing the doctors to work in 'hardship areas would only create greater discontent and encourage illegal migration, the study suggested.

Madras revives inter-collegiate lectures

The Syndicate of the Madras University at its meeting held recently in Madras decided to revive the intercollegiate lecture system for postgraduate courses in Madras and P.G. extension centres at Coimbatore and Tiruchi. This system will enable the students of colleges to have the benefit of lectures from specialists. The Syndicate also de-

cided to institute private appearance for the B. Litt course for teachers who have completed 28 years of age. Similarly private appearance for the 'Pulavar' course would be continued for the benefit of teachers and according to the scheme the preliminary and final examinations can be written in 1981 and 1982 subject to the age regulation of 20 years. The constitution of a committee to study and recommend whether a new course called 'Management of Educational Institutions' should be instituted in the university was also approved by the Syndicate. A new degree course called 'Temple Architecture' was also decided upon. This course will be conducted at the Tamil Nadu Institute of Architecture and Sculpture at Mamallapuram. The Syndicate approved the setting up of a committee to draft the regulations and syllabus for the course.

Educating students in population problem

Concepts of population education are to be introduced in the formal system of education. The Government of India has approved a programme designed to ensure that the younger generation grows up with adequate awareness of the population problem and its responsibility in this respect.

The programme is estimated to cost Rs 4.26 crores during the three years 1980-83. It involves the preparation of curriculum and material at the national and state levels and training of teachers and field-workers. Material will also be developed for out-of-school children in non-formal education centres.

Ten States have already taken up the programme this year and nine others will do so next year. The ten States and Union Territories presently participating in the programme are: Bihar, Chandigarh, Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Punjab, Rajasthan and Tamil Nadu.

The programme has been prepared in collaboration with the

United Nations Funds for Population Activities (UNFPA) and with the active involvement of the Ministry of Health and Family Welfare, which is the nodal Ministry for the population education programme. It will be implemented by the Ministry of Education and Culture.

A National Steering Committee will have an over all authority for coordination and implementation. The National Council of Educational Research and Training will render technical assistance. Coordination committees and population education cells are being set up in the States to implement the programme on the basis of approved work plan.

Madras approves new syllabuses

The Academic Council of the Madras University at its special meeting approved the revised regulations and syllabuses for the BA, BSc and BCom degree courses consequent on the introduction of the +2 course. These are to take effect from the academic year 1980-81 when the first batch of students from higher secondary schools in Tamil Nadu will be joining the colleges.

The special meeting was convened since the earlier meeting of the Council did not agree to the restructuring of degree courses but wanted only the enrichment of syllabuses within the existing pattern.

The Syndicate at its meeting held in May last accepted the regulations and enriched syllabuses as recommended by the Boards of Studies. These recommendations were approved by the Academic Council.

Mr G.R. Damodaran, Vice-Chancellor of the University, referred to the various legal aspects of the various problems and suggested that these should be examined in detail before implementing them.

The question of according higher priority to internal assessment as compared to external valuation was also discussed. Some members wanted the total abolition of internal assessment while others pleaded for greater weightage for it.

Delhi to impart community health diploma course

The Institute of Public Health and Hygiene, New Delhi will be offering a Community Health Workers' Diploma Course from the academic session 1980-81. The syllabus of the diploma course is based on three-postgraduate health education courses of the University of Delhi and the University of Calcutta. After successful completion, the diploma holders would be eligible for appointment as Sanitary Inspector; Food Inspector; Malaria Inspector/Worker; Community Health Worker; Multipurpose Health Worker; Vaccinator; Health Educator; Asstt Sanitary Inspector/Sanitary Guide; Labour Health Welfare Inspector; Family Health/Welfare Worker; Public Health Worker, etc.

For admission to the said diploma course, the candidates must have passed Matriculation or its equivalent examination of any recognised Board / Institution. The duration of the course is 10 months and the final examination will be held in May, 1981. There is no age restriction for admission in the said course. Postal coaching facilities are also available for persons either in employment or residing outside the Union Territory of Delhi. Private candidates are also allowed to appear in the examinations.

Book extension counters proposed

The Bhartiya Vidya Bhavan proposes to open book extension counters as pilot project in some selected colleges and schools. Details of the project have been worked out and the Bhavan will arrange to procure and supply the publications to the principal of the institution concerned where the counter has been established. The institution accepting the project will establish a readers' club for the students which will organise meetings to introduce books and discuss them as also book exhibitions and programmes of a competitive nature whereby reading habits are tested and encouraged.

Mr Prabhudas Patwari, Gover-

nor of Tamil Nadu, who presided over the meeting said it was the duty of every parent to provide wholesome literature to the youngster which was food for the soul. The management of schools and colleges, local bodies and the Government has also a big role to play in this direction. He said that with a view to keeping the youth away from evil influences, he had ordered that no new cinema hoardings and posters be put up in the vicinity of schools and colleges.

Mr C. Subramaniam, former Union Minister, explaining the salient features of the project pointed out that the project had become imperative as a review of the reading habits of the youth presented a rather dismal picture of undirected and purposeless effort. The main object of the project was to see that the youth cultivated the habit of reading. He said that it might be possible to get financial support from the UGC if the colleges undertook the programme of readers club as a part of the college improvement scheme. He also suggested the Bhavan to explore the possibility of donors' names being given to the countries and the interest accruing from the capitalised amount being used for running the counters.

M.Phil course at SNDT

The SNDT Women's University will be offering the M.Phil course in English, Gujarati, Marathi and Sociology at the Department of Postgraduate Studies and Research from the current academic session. The programme is intended to deepen knowledge in respective disciplines, develop communication skills and to provide training for research for Ph.D. degree. Those holding a master's degree in the concerned subjects will be eligible for the course.

Certificate course in Sanskrit

Kurukshetra University has decided to start a one-year certificate course in Sanskrit from the coming academic session, with a view to promoting and disseminating knowledge of Sanskrit language and literature.

The classes will be held in the

Department of Sanskrit in the evening and no tuition fee would be charged. Persons who have passed the Matriculation [or an equivalent examination are eligible to join this course.

J.P. Chair proposed at Calcutta

To perpetuate the memory of Shri Jayaprakash Narayan, the Calcutta University has decided to create a chair for social thought after the name of Lok-nayak. The universities authorities will soon be writing to the University Grants Commission for necessary funds.

Madurai to host world Tamil conference

The Education Minister of Tamil Nadu said in Madras that his Government will be hosting the World Tamil Conference in Madurai during January 1981. A large number of foreign delegates are expected to participate. The government has appointed a special cell for making elaborate arrangements for this conference.

Personal

1. Mr. J.S. Khanna has been appointed Registrar of the Guru Nanak Dev University.
2. Mr. L.S. Sandhu has been appointed Finance and Development Officer of the Guru Nanak Dev University.
3. Prof. R.D. Singh, Head of the Department of Mining Engineering, Indian School of Mines, has been awarded the Dewan Bahadur D.D. Thacker Coal Mining Gold Medal for 1978-79 for his outstanding contributions to coal mining and related sciences.
4. Prof. I. J. Nagrath of Electrical and Electronics Engineering Department and Dean, Instruction Division, BITS, Pilani, has been awarded a certificate of Merit by the Institution of Engineers (India) for his joint paper entitled "Security Constrained Economic Thermal Generating Unit Commitment."

GNDU organises seminar on 'Punjab Economy in Retrospect and Prospect'

A seminar on 'Punjab Economy in Retrospect and Prospect' sponsored by the Indian Council of Social Sciences Research was held at Punjab School of Economics, Guru Nanak Dev University, Amritsar. The seminar was inaugurated by Dr K.S. Gill, Vice-Chancellor of the University.

Giving various facts and figures, Dr Gill highlighted the achievements of the Punjab economy and explained how she was having the highest per capita income in the country. He also brought out the precarious deficiencies of this prosperity as indicated by absence of large scale industries, minerals, power, shortage of industrial inputs like coal, steel, pig-iron, diesel etc. as well as lack of trade opportunities with Pakistan. All these factors, he said, have given rise to an economy with highly developed agriculture on the one hand and lagging industrial development on the other. A balance growth of Punjab economy needed rectification of this imbalance.

Welcoming the delegates, Dr R.S. Johar, Professor and Head, Punjab School of Economics also highlighted the deficiencies of Punjab economy and laid stress on the need for industrial development.

The first session was presided by Dr K.S. Gill. Dr. Gill's paper: 'Employment and Unemployment Problem in Punjab' broke new ground on research on a difficult aspect of the developing economic situation in Punjab.

His analysis brought out :

- (1) that the average labour productivity in manufacturing was only 77 per cent of the productivity in agriculture in Punjab as against 225 per cent for India as a whole;
- (2) the bleak prospects of educated employment in Punjab;

Fifteen papers relating to Punjab agriculture were presented. The thrust of the analysis

in the papers was to identify the resources of imbalance in the growth of Punjab agriculture.

Sixteen papers relating to pattern and strategy of industrial development, trade unionism, commercial banking, plan evaluation, industrial focal points, rural-urban migration in Punjab and some micro-level studies in steel rerolling and engineering goods, were presented. Some of the interesting papers dealt with the lagging industrial development of Punjab in historical perspective, the poor linkages between agriculture and industry in the State and a study of the consumption pattern in Punjab.

Besides others, the Seminar provided opportunities to young researchers to discuss the findings of their research. The Seminar was informed that another Seminar on 'Problems and Processes of Industrialisation in Punjab, was being planned by the Punjab School of Economics, in the year 1980-81.

Delhi to set up science centre

A science centre and a science park are proposed to be set up in Delhi to help spread popular understanding of science and technology. A decision to this effect was taken at a meeting of the Educational Council of Science Museums held under the chairmanship of Education Minister, Shri B. Shankranand.

The science centre will display working models to explain subjects like space exploration, telecommunications and computer systems. The Council also decided to set up 20 district science centres in backward areas. A children science park has already been established in Bombay and a science centre in Patna is under construction. The Education Minister said that the Council should expand its activities by setting up science museums in all parts of the country. The National Council coordinates

the activities of the existing science museums in Calcutta, Bangalore and Bombay. It was formed two years ago to develop a chain of science museums in the centre.

Osmania to introduce field work scheme

Osmania University will introduce field work as part of curriculum at degree level in selected colleges from the coming academic year. The scheme will be introduced in 24 colleges including two medical and one engineering colleges under the university jurisdiction where the National Service Scheme (NSS) and restructured courses are working satisfactorily.

The aim of the field work scheme is to expose the students to the realities in the society in the form of extension work.

The first year students in the selected colleges will take up field work for two half-days a week or four days in a month. A specific mention of their field work experience will be made in their degree certificate. One subject among the three undergraduate subjects will be recast for the student. Thus a student will choose any of these subjects for field work, the other two subjects being offered in the conventional manner.

The evaluation of field work will be through internal assessment and it is suggested that ten per cent of the subject marks will be allotted for this purpose. No student will be permitted to write the theory examination without putting the required field work attendance.

All the students from the selected colleges enrolled under the field work scheme will necessarily be the volunteers of NSS. The NSS functionaries both at the university and college-level will coordinate the field work scheme.

UK's gifts to Union Public Service Commission

Two optical mark reader machines worth £60,000 (about Rs 10.8 lakhs) have been given to the Union Public Service Com-

mission (UPSC) by Britain under Colombo Plan technical co-operation arrangements.

The machines will be used to process the answers written by candidates for the public service onto magnetic tapes which can then be put through the UPSC's computer. Each machine can Process 3,000 forms an hour.

Britain has been collaborating with the UPSC in implementing reforms and innovations to improve efficiency. To this end, two one-week workshops were held in January this year in Delhi and Patna, which were attended by five British specialists. Two more one-week workshops will be held in October in Bombay and Bangalore.

Grants for Bihar University to be revised

The statutory grants to different universities in Bihar are to be revised soon to resolve their financial crisis. Dr S.P. Sinha, Chairman, Bihar State Inter-University Board, said in Patna that the old statutory grants of the universities had not been revised since long as a result of which the universities were finding difficulty in carrying their even day-to-day work. He said that the grants sanctioned by the government were inadequate and hence the universities had to take bank overdraft to meet their expenditure. He said that the Chancellor had taken steps to get the statutory grants of the universities revised very soon to ensure smooth flow of government money to the universities.

Dr Sinha said that the universities would get special supply of electricity to carry out science practicals and research activities. The Electricity Board, he added, had been requested to ensure at least four hours uninterrupted electric supply to the universities every day. The Board had already decided to instal power generators in every university to meet their electric requirements.

Correspondence course commended

Prof. G. Ram Reddy, Vice-Chancellor, Osmania University stressed the importance of open

university system of education as it was in no way inferior to the conventional college education. Through correspondence, he said, large sections of people could be reached and the students should take advantage of it as it was cheaper method of imparting instruction.

Inaugurating the six-week Correspondence cum-Contact Programme in Education organised by the Department of Education of the university, Prof. Reddy said there should be no compromise in quality of education imparted through correspondence.

Mr M. Gopalkrishna, Education Secretary, who presided, said correspondence courses have a special significance in our country due to large percentage of drop-outs. The teachers already in service would largely get benefited through the correspondence courses.

Bihar organises workshop on question bank

The Bihar School Examination Board will hold a workshop on question banks to prepare model questions in different subjects in view of the changed pattern of examination in the State. Dr Dharendra Prasad, Chairman of the Board, said that this would be the second workshop on question bank. The first workshop was held in May.

The workshop would prepare model questions along with answers in Hindi, Urdu, Bangali, Maithili, Commerce and Domestic Science. Dr R.G. Mishra, Head of the Department of Measurement and Evaluation, NCERT

will be the Chairman of the workshop. The question banks prepared at the workshop would be made available to the students and teachers to make them aware of the new pattern of examination.

Nagpur honours Shantaram

V. Shantaram, the famous film maker known for making purposeful films which contributed a great deal to social awareness was honoured with honorary D. Litt. degree by the Nagpur University at its 69th convocation held at Nagpur. Recounting his experiences for six decades in the film industry, Mr Shantaram said that his aim was not mere entertainment but also education through the powerful medium. Thanking the Nagpur University for the honour conferred on him, he said that such social recognition he had been able to achieve was necessary for inspiring not only him but others with a purposeful aim in the industry.

Calcutta to start correspondence courses

The Calcutta University will shortly start correspondence courses in humanities and commerce for the bachelor degree. Mr Sambhu Ghose, West Bengal Minister of Higher Education, made this announcement in Calcutta. He said that he had got the clearance for launching these courses from the Union Minister for Education, Mr V. Shankaranand and the Chairman of the University Grants Commission, Prof. Satish Chandra.

University Libraries in Karnataka

(Continued from page 358)

Proper planning and dynamic professional leadership are essential to translate into action many of the co-operative activities.

Hence this subject of resource sharing among the university libraries should receive priority from those who are concerned with the well-being of the university libraries. The Government of Karnataka must constitute a

committee of experts who could work out detailed plans, estimate the cost involved and also explore the possible assistance that can be had from various national and international organisations.

Once such a plan of action is undertaken, it will be possible to establish and manage an effective information network among the university libraries in Karnataka.

(Courtesy : The Deccan Herald)

Conferences, Seminars & Workshops

July—September 1980

| Date | Title | Place | Sponsoring Body |
|---------------|---|-----------------|---|
| 2—8 July | Materials Management | Bangalore | National Productivity Council |
| 4—19 July | Cryogenic techniques I. Liquid nitrogen | Bangalore | Indian Institute of Science |
| 4—19 July | Software engineering | Bangalore | Indian Institute of Science |
| 7—8 July | Farm waste management | Chandigarh | National Productivity Council |
| 8—12 July | Management of Small Scale Industry | Gauhati | National Productivity Council |
| 14—18 July | 7th National Seminar on Financial Management for Non-finance executives | Bombay | All India Management Association |
| 14—19 July | Financial management for non-financial executives | Madras | National Productivity Council |
| 14—26 July | Surface mining | Dhanbad | Indian School of Mines |
| 14—28 July | Production diseases with special reference to Ruman Dysfunctions in bovines | Ludhiana | Punjab Agricultural University |
| 14 July-2 Aug | Basic reservoir engineering | Dhanbad | Indian School of Mines |
| 15—19 July | Tribology | Calcutta | National Productivity Council |
| 21—26 July | Finance for non-finance executives | Delhi | Indian Institute of Public Admin. |
| 21—30 July | Operations research for managers in mining industry | Dhanbad | Indian School of Mines |
| 22—26 July | Corrosion prevention and control | Ahmedabad | National Productivity Council |
| 22—26 July | Profit maximisation through cost reduction | Ahmedabad | National Productivity Council |
| 23—26 July | Marketing information system for engineering products | Bangalore | National Productivity Council |
| 24—27 July | Mid term symposium on electronics in industry | Chandigarh | Institute of Electronics and Telecomn Engineers |
| 28 July-9 Aug | Intensive course on power electronics | Dhanbad | Indian School of Mines |
| 29 July-8 Aug | Quality engineering and management | Calcutta | National Productivity Council |
| 30—31 July | Management of ports | Delhi | All India Management Association |
| July 1980 | Course in medical virology | Pune | National Institute of Virology |
| 4—6 Aug | Management of sick units | Delhi | All India Management Association |
| 4—6 Aug | New dimensions in industrial relations | Bombay | National Productivity Council |
| 4—8 Aug | Productivity techniques applications to agro-based industries | Chandigarh | National Productivity Council |
| 4—9 Aug | Communication and conflict management | Dhanbad | Indian School of Mines |
| 4—9 Aug | 4th programme on mining for non-mining executives | Dhanbad | Indian School of Mines |
| 4—16 Aug | Modern developments in ceramic engineering | Dhanbad | Indian School of Mines |
| 5—11 Aug | Refresher course on computer aided chemical process plants | Delhi | IIT |
| 6—8 Aug | Applications of solar energy in industry and rural areas | Delhi | National Productivity Council |
| 6—8 Aug | National workshop on stress corrosion cracking | Kalpakkam | Society for advancement of Electro-chemical Science & Technology |
| 16—30 Aug | School in design and analysis of equipment for pollution monitoring control | Bangalore | Indian Institute of Science |
| 16—30 Aug | Vibration problems in engineering | Bangalore | Indian Institute of Science |
| 16 Aug-6 Sept | 21st Advanced Management Programme | Srinagar | All India Management Association |
| 18—20 Aug | Management information systems | Delhi | National Productivity Council |
| 18—22 Aug | Management Information System and Computers | Bombay | National Productivity Council |
| 18—23 Aug | Production planning & control | Bangalore | National Productivity Council |
| 19—23 Aug | Industrial relations and productivity | Patna | National Productivity Council |
| 22—23 Aug | Workshop on environmental pollution, monitoring and control in tannery | Kanpur | Indian Inst. of Chemical Engineers |
| 22—27 Sept | Advanced seminar in marketing | Kathmandu | All India Management Association |
| 25—30 Aug | Financial management for small industries | Calcutta | National Productivity Council |
| 25—30 Aug | Geology for non-geology executives | Dhanbad | Indian School of Mines |
| Aug 1980 | Symposium on electromagnetics | Bangalore | Inst. of Electronics and Telecom- munication Engineers |
| Aug 1980 | Symposium on modern trends in communications | Ahmedabad | Inst. of Electronics and Telecomn. Engineers |
| Aug 1980 | Symposium on semiconductor materials and devices | Calcutta | Inst. of Radiophysics and Electro- nics, Univ. College of Technology |
| 1—6 Sept | Combustion engineering | Dhanbad | Indian School of Mines |
| 1—6 Sept | Microcomputer-based information systems design | Bombay | National Institute for Training in Industrial Engineering |
| 1—12 Sept | Facilities planning and management | Bombay | Nat. Inst. for Training in Industrial Engineering |
| 1—15 Sept | Space science technology and applications—an over- view | Bangalore | Indian Institute of Science |
| 1—21 Sept | Conference of young editors and journalists of the world | Delhi | National Youth Forum |
| 3—6 Sept | Leadership and managerial effectiveness | Bangalore | National Productivity Council |
| 3—12 Sept | Social cost-benefit analysis—workshop | Delhi | Indian Institute of Public Administ- ration |
| 8—19 Sept | Project management | Patna Bombay | National Productivity Council |

| Date | Title | Place | Sponsoring Body |
|---------------|---|-------------------|--|
| 8-28 Sept | Course on monitoring and evaluation | Delhi | IIT |
| 10-12 Sept | Effective management of training | Mussoorie | National Productivity Council |
| 10-12 Sept | Familiarisation Workshop on the programme of the International Crops Research Institute for the Semi-Arid tropics | Patancheru (A.P.) | ICRISAT |
| 12-13 Sept | All India seminar on development of ship ancillary industry in India | Bombay | Institute of Marine Engineers |
| 12-14 Sept | 45th Annual Convention of the Indian Society of Soil Science | Karnal | Indian Society of Soil Science, Central Soil Salinity Research Inst. |
| 14-27 Sept | Programme on advancement of management and productivity | Srinagar | National Productivity Council |
| 15-20 Sept | Decision making | Delhi | National Productivity Council |
| 16-30 Sept | Sound transmission in coastal seas | Bangalore | Indian Institute of Science |
| 17-23 Sept | Improving office productivity | Bangalore | National Productivity Council |
| 22-27 Sept | Achievement motivation for higher productivity | Bombay | National Inst. for Training in Industrial Engineering |
| 22 Sept-1 Oct | Project management | Delhi | Indian Institute of Public Administration |
| 22 Sept-4 Oct | Photogrammetry and remote sensing in Mineral exploration and mining | Dhanbad | Indian School of Mines |
| 26-28 Sept | National Symposium on Utilisation of Agricultural and Forest Residues | Chandigarh | Indian Inst. of Chemical Engineers |
| Sept 1980 | International Congress of writers and intellectuals | Patna | Readers & Writers International |
| Sept 1980 | Symposium on electron devices | Pune | Inst. of Electronic & Telecommunication Engineers |
| Sept-Oct | Industries conference on paints | Hyderabad | Indian Standards Institution |

Subject Index

| Date | Title | Place | Sponsoring Body |
|------------------------------------|---|-------------------|--|
| Agriculture | | | |
| 10-12 Sept | Familiarisation Workshop on the programme of the International Crops Research Institute for the Semi-Arid tropics | Patancheru (A.P.) | ICRISAT |
| 7-8 July | Farm Waste Management | Chandigarh | National Productivity Council |
| 12-14 Sept | 45th Annual Convention of the Indian Society of Soil Science | Karnal | Indian Society of Soil Science, Central Soil Salinity Research Inst. |
| 26-28 Sept | National Symposium on Utilisation of Agricultural and Forest Residues | Chandigarh | Indian Inst. of Chemical Engineers |
| 14-28 July | Production diseases with special reference to Ruman Dysfunctions in bovines | Ludhiana | Punjab Agricultural University |
| Communication | | | |
| 4-9 Aug | Communication and conflict management | Dhanbad | Indian School of Mines |
| Aug 1980 | Symposium on modern trends in communications | Ahmedabad | Inst. of Electronics and Telecomm. Engineers |
| Economics & Finance | | | |
| 21-26 July | Finance for non-finance executives | Delhi | Indian Inst. of Public Admn. |
| 14-19 July | Financial management for non-financial executives | Madras | National Productivity Council |
| 25-30 Aug | Financial management for small industries | Calcutta | National Productivity Council |
| 14-18 July | 7th National Seminar on Financial Management for Non-finance Executives | Bombay | All India Management Association |
| 3-12 Sept | Social Cost-benefit analysis—workshop | Delhi | Indian Inst. of Public Admin. |
| Electricity and Electronics | | | |
| 28 July-9 Aug | Intensive course on power electronics | Dhanbad | Indian School of Mines |
| 24-27 July | Mid term symposium on electronics in industry | Chandigarh | Inst of Electronics & Telecomm. Engineers |
| Aug 1980 | Symposium on electromagnetics | Bangalore | Inst. of Electronics and Telecomm. Engineers |
| Sept 1980 | Symposium on electron devices | Pune | Inst. of Electronic and Telecommunication Engineers |
| August 1980 | Symposium on semiconductor materials and devices | Calcutta | Inst. of Radiophysics and Electronics, Univ. College of Technology |
| Energy | | | |
| 6-8 Aug | Applications of solar energy in industry and rural areas | Delhi | National Productivity Council |
| Engineering | | | |
| 14 July-2 Aug | Basic reservoir engineering | Dhanbad | Indian School of Mines |
| 1-6 Sept | Combustion engineering | Dhanbad | Indian School of Mines |
| 22-26 July | Corrosion prevention & control | Ahmedabad | National Productivity Council |
| 8-28 Sept | Course on monitoring and evaluation | Delhi | IIT |
| 4-16 Aug | Modern developments in ceramic engineering | Dhanbad | Indian School of Mines |

| Date | Title | Place | Sponsoring Body |
|-------------------------------------|---|-------------|--|
| 6-8 Aug | National workshop on stress corrosion cracking | Kalpakkam | Society for advancement of Electrochemical Science & Technology & Reactor Research Centre, Kalpakkam |
| 29 July-8 Aug | Quality engineering and management | Calcutta | National Productivity Council |
| 4-19 July | Software engineering | Bangalore | Indian Institute of Science |
| 15-19 July | Tribology | Calcutta | National Productivity Council |
| 16-30 Aug | Vibration problems in engineering | Bangalore | Indian Institute of Science |
| Environment and Pollution | | | |
| 16-30 Aug | School in design and analysis of equipment for pollution monitoring control | Bangalore | Indian Inst. of Science |
| 22-23 Aug | Workshop on environmental pollution, monitoring and control in tannery | Kanpur | Indian Inst. of Chemical Engineers |
| Geology & Geography | | | |
| 25-30 Aug | Geology for non-geology executives | Dhanbad | Indian School of Mines |
| Industry and Labour | | | |
| 19-23 Aug | Industrial relations and productivity | Patna | National Productivity Council |
| Sept-Oct 1980 | Industries conference on paints | Hyderabad | Indian Standards Institution |
| Sept-Oct 1980 | Industry-wise conference in the field of surgical instruments and equipment | Jullundur | Indian Standards Institution |
| 8-12 July | Management of Small Scale Industry | Gauhati | National Productivity Council |
| 4-6 Aug | New dimensions in industrial relations | Bombay | National Productivity Council |
| 4-8 Aug | Productivity techniques applications to agro-based industries | Chandigarh | National Productivity Council |
| Journalism | | | |
| 1-21 Sept | Conference of young editors and journalist of the world | Delhi | National Youth Forum |
| Literature | | | |
| Sept 1980 | International Congress of writers and intellectuals | Patna | Readers and Writers International |
| Management & Marketing | | | |
| 22-27 Sept | Achievement motivation for higher productivity | Bombay | National Inst. for training in Industrial Engineering |
| 22-27 Sept | Advanced seminar in marketing | Kathmandu | All India Management Association |
| 15-20 Sept | Decision making | Delhi | National Productivity Council |
| 10-12 Sept | Effective Management of Training | Mussoorie | National Productivity Council |
| 1-12 Sept | Facilities planning & management | Bombay | National Inst. for Training in Industrial Engg. |
| 17-23 Sept | Improving office productivity | Bangalore | National Productivity Council |
| 3-6 Sept | Leadership and managerial effectiveness | Bangalore | National Productivity Council |
| 4-6 Aug | Management of sick units | Delhi | All India Management Association |
| 23-26 July | Marketing information system for engineering products | Bangalore | National Productivity Council |
| 18-23 Aug | Production planning & control | Bangalore | National Productivity Council |
| 22-26 July | Profit maximisation through cost reduction | Ahmedabad | National Productivity Council |
| 14-27 Sept | Programme on advancement of management and productivity | Srinagar | National Productivity Council |
| 8-12 Sept | Project Management | Patna | National Productivity Council |
| 8-19 Sept | Project Management | Bombay | Indian Institute of Public Administration |
| 22 Sept-1 Oct | Project Management | Delhi | All India Management Association |
| 16 Aug-6 Sept | 21st Advanced Management Programme | Srinagar | All India Management Association |
| Materials Management | | | |
| 2-8 July | Materials management | Bangalore | National Productivity Council |
| Medicine & Public Health | | | |
| July 1980 | Course in medical virology | Pune | National Inst. of Virology |
| Mining | | | |
| 4-9 Aug | 4th programme on mining for non-mining executives | Dhanbad | Indian School of Mines |
| 21-30 July | Operations research for managers in mining industry | Dhanbad | Indian School of Mines |
| 22 Sept-4 Oct | Photogrammetry and remote sensing in mineral exploration and mining | Dhanbad | Indian School of Mines |
| 14-26 July | Surface mining | Dhanbad | Indian School of Mines |
| Research and Information | | | |
| 18-20 Aug | Management information systems | Delhi | National Productivity Council |
| 18-22 Aug | Management information system and computers | Bombay | National Productivity Council |
| 1-6 Sept | Microcomputer-based information systems design | Bombay | National Inst. for Training and Industrial Engg. |
| Science & Technology | | | |
| 4-19 July | Cryogenic techniques I. Liquid nitrogen | Bangalore I | Indian Inst. of Sciences |
| 5-11 Aug | Refresher course on computer aided chemical process plants | Delhi | IIT |
| 16-30 Sept | Sound transmission in coastal seas | Bangalore | Indian Institute of Science |
| 1-15 Sept | Space science technology and applications—an overview | Bangalore | Indian Inst. of Science |
| Shipping | | | |
| 12-13 Sept | All India Seminar on development of ship ancillary industry in India | Bombay | Institute of Marine Engineers |
| 30-31 July | Management of ports | Delhi | All India Management Association |

CLASSIFIED ADVERTISEMENTS

VIKRAM UNIVERSITY, UJJAIN

No. Dev/80/Estt/Advt/662

Dated : 11.6.80

Advertisement

Applications, on the prescribed forms available from the University Office on payment of Rs 5/- in cash or by M.O./I.P.O. payable to the Registrar, are invited for the following posts in the University Schools of Studies and Department of Library Science.

| S.No. | Department | Number of Posts | | | |
|---------|---|-----------------|--------|----------|-----------|
| | | Prof. | Reader | Lecturer | R. Fellow |
| 1. | Physics | — | — | 1 | — |
| 2. | Chemistry | — | 1 | 3* | — |
| 3. | Botany | — | — | 3 | — |
| 4. | Zoology | — | 2** | 2 | — |
| 5. | Geology | — | 1 | 1 | — |
| 6. | Mathematics | — | — | 3£ | — |
| 7. | Statistics | — | — | 1+ | — |
| 8. | English | 1 | — | — | — |
| 9. | Hindi | — | — | 2 | — |
| 10. | Sanskrit | — | — | 1 | — |
| 11. | Economics | 1 | — | 1 | — |
| 12. | Pol. Science | — | — | 1 | — |
| 13. | Ancient Indian History, Culture & Archaeology | — | 2 | 2= | 1 |
| 14. | Library Science | — | — | 1 | — |
| Total : | | 2 | 6 | 22 | 1 |

- Note :-**
- One post of Lecturer in Chemistry is temporary upto 6.10.81 but likely to continue and another post of a Lecturer in Chemistry is purely temporary upto 31.7.81.
 - ** One post of Reader in Zoology is temporary for the time being upto 22.10.81 but likely to continue.
 - £ One post of Lecturer in Maths. is purely temporary upto 21.9.80.
 - + One post of Lecturer in Statistics is purely temporary upto 3.3.81 but likely to continue.
 - = One post of Lecturer in A.I.H.C. & Arch. is temporary upto 6.7.81 but likely to continue.

PAY SCALE

- (i) Professor—Rs. 1500-60-1800-100-2000-125/2-2500.
- (ii) Reader—Rs. 1200-50-1300-60-1900.
- (iii) Lecturer—Rs. 700-40-1100-50-1600.
- (iv) Research Fellow—Rs 300-25-600

QUALIFICATIONS

- (i) Research Fellow
 - (a) Atleast a Second Class Master's Degree of an Indian University or an equivalent qualification of a foreign University in the subject concerned.
 - (b) Knowledge of Hindi will be desirable
- (ii) Lecturers
 - (A) (a) (i) A Doctor's Degree or published research work of an equivalent high standard; and
 - (b) (i) A Second Class Master's Degree in a relevant subject with at least 50% marks (B in the seven point scale) or an equivalent degree of a Foreign University and

N.B. : (While taking into account the marks/grade, the marks/grade obtained in internal assess-

ment, if any, shall be excluded).

- (ii) Atleast 50% marks at the Bachelor's Degree examination on the basis of which division is awarded at the Degree level by the University, and
- (iii) At least 50% marks at the Higher Secondary/Intermediate/Pre-University examination, as the case may be.

Having regard to the need for developing interdisciplinary programmes, the Degrees in (a) & (b) (i) above may be in relevant subjects.

Provided that if the Selection Committee is of the view that the research work of a candidate, as evident either from his thesis or from his published work, is of very high standard it may relax any of the qualifications prescribed in (b) above.

Provided further that if a candidate possessing a Doctor's Degree or equivalent research work is not available or is not considered suitable, a person possessing the following qualifications may be recruited :

- (B) (i) A Second Class Master's Degree in a relevant subject with atleast 50% marks (B in the seven point scale); and

N.B. : (While taking into account the marks/grade, the marks/grade obtained in internal assessment, if any, shall be excluded).

- (ii) Two year's experience of research work or practical experience in research laboratory/research organisation; and
 - (iii) Atleast 50% marks at the Bachelor's Degree examination on the basis of which division is awarded at the degree level by the University; and
 - (iv) At least 50% marks at the Higher Secondary/Intermediate/Pre-University examination, as the case may be.
- OR**
- (C) (i) A Master's Degree with First Class or Grade 'A' in relevant subject; and
 - (ii) At least 50% marks at the Bachelor's Degree examination on the basis of which division is awarded by the University; and
 - (iii) Atleast 50% marks at the Higher Secondary/Intermediate/Pre-University examination as the case may be.

Provided further that in the case of categories (B) and (C), a candidate will have to obtain a Doctor's Degree/ M. Phil. Degree or have to his credit published research work of equivalent standard within 5 years of his appointment failing which he will not earn future increments until he fulfils these requirements.

N.B. : The requirement regarding minimum percentage of marks shall be relaxed upto 5% in case of Scheduled Castes/ Scheduled Tribes candidates.

- (ii) Professors and Readers
 - (a) (i) A Doctor's Degree or published work of an equivalent high standard; and
 - (b) (i) A Second Class Master's Degree in a relevant subject with atleast 50% marks (B in the seven point scale) or an equivalent Degree of a Foreign University; and

N.B. : (While taking into account the marks/grade, the marks/grade obtained in internal assessment, if any, shall be excluded).

- (ii) Atleast 50% marks at the Bachelor's Degree examination on the basis of which division is awarded at the Degree level by the University; and
- (iii) At least 50% marks at the Higher Secondary/Intermediate/Pre-University examination, as the case may be.

AND

- (C) (i) In the case of Professors the experience of teaching of post-graduate classes

shall be atleast 10 years and in the case of Readers the experience of teaching post-graduate classes shall be atleast 5 years; and

- (ii) In case of Professors, evidence of candidate/s having been awarded a Doctor's degree under his supervision and in the case of Reader, atleast three years experience of guiding research.

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published research work is of very high standard, it may relax any of the qualifications prescribed in (b) above.

N.B. : The requirement regarding minimum percentage of marks shall be relaxed upto 5% in case of Scheduled Castes/ Scheduled Tribes candidates.

It will be open for the University to consider the name of any eminent person distinguished in Scholarship who may not have applied for the post.

SPECIALISATION

Candidates for the post of Reader in Chemistry should possess the specialisation in Industrial Chemistry.

Candidates for one substantive post of Lecturer in Mathematics should possess the specialisation in Astronomy.

All appointments will be on probation for two years in the first instance except on the posts indicated as temporary. Superannuation age is 60 years. In addition to pay, the above scales carry dearness allowance, additional dearness allowance and the benefit of contributory provident fund (after confirmation) as per rules of the University in force from time to time. Higher start is possible to deserving candidates.

Scheduled Castes and Scheduled Tribes candidates will be given preference, if found suitable.

Applications complete in all respects and accompanied with Cross I.P.O. of Rs 7.50 p. for the post of Professor, Rs 5/- for the post of Reader and Rs 3/- for the post of Lecturer payable to the Registrar, Vikram University, Ujjain should reach the undersigned on or before 7th July, 1980. The envelope containing application form, should be marked "Application for the post of Professor/Reader/Lecturer/Research Scholar in the School of Studies/ Department in -----". Separate application form is essential for each post.

Applications received after the last date or not on the prescribed form or without the prescribed fee will not be considered. Candidates already in service should apply through proper channel. Candidates called for interview will have to attend the same at their own cost.

The University reserves the right to fill-up or not to fill-up any post advertised and/or to call only selected candidates for interview.

REGISTRAR

JAWAHARLAL NEHRU UNIVERSITY

Advt. No. Aca. III/5/80

Applications are invited for the following posts :

I. SCHOOL OF INTERNATIONAL STUDIES

Centre for South, South-East and Centre Asian Studies

1. Associate Professor/Fellow or Assistant Professor (Leave Vacancy).

Associate Professor/Fellow

Essential Qualifications

- (a) Consistently good academic record with at least a high second class Master's degree in any of the Social Sciences or its equivalent qualification from an Indian/foreign University;
- (b) A Ph.D. degree or published work of an equally high standard relating to Sri Lanka Studies;
- (c) About five years experience of teaching and/or research in the field of Sri Lanka Studies.

Desirable : Knowledge of Sinhalese.

Note: There is only one leave vacancy of an Associate Professor/Fellow till Dec. 31, 1980; in the event of none of the applicant being found suitable for appointment to the post of Associate Professor, the university may consider offering the post of Assistant Professor from among the applicants.

II. SCHOOL OF LANGUAGES

2. Centre of French Studies

Assistant Professor in French (Leave Vacancy)

Essential Qualifications

- (a) Consistently good academic record with at least a high 2nd class Master's degree in French or its equivalent qualification from an Indian/Foreign University; and
- (b) A Ph.D. degree or published work of an equally high standard.

Desirable: Knowledge of teaching French by Audio-visual method and some teaching experience.

Provided that in the case of Assistant Professors if the Selection Committees are of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of the qualification prescribed in (a) above.

Provided further if a candidate possessing a Ph.D. degree or equivalent research work is not available or is not considered suitable a person possessing a consistently good academic record (weightage being given to M.Phil or equivalent degree or research work of quality) may be appointed provided he/she has done research work for at least two years or has practical experience in a research laboratory/organisation on the condition that he will have to obtain a Ph.D. degree or give evidence of research work of equivalent high standard within five years of his appointment, failing he will not be able to earn future increments until he fulfils these requirements.

III. SCHOOL OF LIFE SCIENCES

3. Laboratory Technician Grade—III—two (one reserved for Scheduled Caste candidate)

Essential Qualifications

Diploma or an equivalent degree in Electronics/Mechanical Engineering of a recognised Institution and having about three years experience in servicing and maintenance of scientific instruments.

Scales of Pay

1. Associate Professor/Fellow Rs. 1200-50-1300-60-1900.
2. Assistant Professor : Rs. 700-40-1100-50-1600.
3. Laboratory Tech. Grade—III: Rs. 425-15-500-EB-560-20-700.

Relaxation in any of the qualifications may be made (a) in favour of persons of eminence or of high academic/professional distinction and (b) in exceptional cases where adequately qualified persons are not available but are otherwise found suitable for the respective position. It will also be open to the University to consider the names of suitable candidates who may not have applied.

The Selected candidates will be expected to participate in the teaching and research programmes in the concerned disciplines in other Schools of the University as well as in the programmes offered in their own Centre of Studies.

Normally appointment of Fellows is made on contract basis for a period ranging from one to three years.

Benefits of C.P. Fund-cum-Gratuity/G. P. Fund-cum-Pension-cum-Gratuity are available as per University rules.

Persons already in employment should route their applications through proper channel.

Due consideration will be given to candidates belonging to SC/ST at the level of Assistant Professor.

For Laboratory Technician Grade-III

- (i) Age limit 40 years; relaxable by 5 years in respect of candidates belonging to Scheduled Castes & Scheduled Tribes/ Ex-servicemen/Physically handicapped candidates.
- (ii) Upto 1% of the vacancies are reserved each for deaf, blind and orthopaedically handicapped, in Group C & D (Class III & IV posts).

Second class (mail) rail fare (both ways) will be paid to candidates invited to appear for interview from outstation by the shortest route subject to the production of rail receipt.

Applications separate for each post, on the prescribed form, obtainable free of cost from the University by sending a self-addressed and stamped envelope (affixing Postage Stamps worth Rs 2.85) of 23cm x 10cm, size to the Deputy Registrar (Academic), Jawaharlal Nehru University, New Mehrauli Road, New Delhi-67, should reach him latest by July 10, 1980.

Candidates from abroad, applying for the faculty positions, may apply on plain paper, (but their applications should reach the University by the last date) furnishing all the relevant

informations such as their name, date and place of birth, marital status, nationality; state of domicile; postal and permanent addresses; father's name and address; academic and professional attainments; full details of (a) publications, and (b) research projects undertaken; language(s) known; details of visits to foreign countries; and the names and addresses of at least two persons well acquainted with the candidate's professional work who should also be requested by the candidate to forward to the Deputy Registrar (Academic) confidential report concerning the candidate.

be inserted as qualification for the post of Lecturer.

(V) Qualification (i) A consistently good academic record with first or high second class Master's Degree in the relevant subject or equivalent foreign Degree with grade B+ or 55% of Marks which may be relaxed in case of candidates holding a Ph.D. degree.

The last date of receipt of applications in the office of the University at Jyoti Vihar is extended up to 7.7.80.

Other terms and conditions remain unchanged.

B.B. Tripathy
REGISTRAR

SAMBALPUR UNIVERSITY

JYOTI VIHAR : BURLA
SAMBALPUR

Corrigendum No. 9121/Estt. II
Dated the 14-6-80

In partial modification of this office advertisement No. 1983/Estt. II dated 7-2-80 and corrigendum No. 3078/Estt. II dated 21-2-80 the following

UTKAL UNIVERSITY **ADVERTISEMENT**

Advt. No. Estt. II(21-A)/10791/80
Dated 9-6-1980

Wanted a Chief Librarian for the Utkal University Parija Library, Vani Vihar, Bhubaneswar-4 in the scale of pay Rs. 1000-1530/- with the minimum

qualification M.A. in First Class or 2nd Class with 55% marks or more in any subject along with diploma in Library Science from any recognised University and experience as a Librarian for 10 years in any public Library of some repute. For the specially qualified Chief Librarian the scale of pay Rs. 1100-1600/- may be given. Last date for receipt of application is 21-7-1980.

Five copies of application forms will be supplied to the candidates from the office of the undersigned in person on payment of Rs 5.35 paise or by post on receipt of a Crossed Indian Postal Order for Rs 7.85 paise payable to the Finance Officer, Utkal University, Vani Vihar, Bhubaneswar-4. No money order will be entertained for the purpose. Applications should be accompanied by attested copies of certificates, diplomas testimonials etc.

S.K. Panda
REGISTRAR

NOTIFICATION

Jawaharlal Nehru Technological University and Osmania University

Announce a Common Entrance Examination for Admission to the First year of B.E./B.Tech. Civil, Electrical, Electrical and Electronics, Mechanical, Electronics and Communication, Mining and Chemical Engineering courses and B. Arch. courses of study in their respective Colleges

1980-81 Session

1. ELIGIBILITY

(a) Candidates of Indian Nationality belonging to Andhra Pradesh or whose parents/accuses are working in Public Sector Undertakings, Universities, Andhra Pradesh State Government, Central Government or Quasi-Government organisations within the State of Andhra Pradesh and who have passed the two-year Intermediate Examination conducted by the Board of Intermediate studies, Andhra Pradesh with Mathematics, Physics and Chemistry as Optional subjects or any other examination recognised as equivalent thereto by the two Universities are eligible for appearance at the Common Entrance Examination for admission to the 1st year of the following courses:

- (i) B.Tech./B.E. Civil Engineering
- (ii) B.Tech./B.E. Mechanical Engineering
- (iii) B.E. Electrical Engineering (O.U.)
- (iv) B.Tech. Electrical and Electronics Engineering (J.N.T.U.)
- (v) B.Tech./B.E. Electronics and Communication Engineering
- (vi) B.Tech. Chemical Engineering
- (vii) B.E. Mining Engineering
- (viii) B. Architecture

4 years duration.

5 years duration.

Admission to the above courses will be on the basis of merit in the Common Entrance Examination that will be conducted jointly by the two Universities.

(b) Candidates who have passed the qualifying examination compartmentally are also eligible.

2. The selection and admission to the B.E./B.Tech. Civil, Electrical, Electrical and Electronics, Mechanical, Electronics & Communication, Mining and Chemical Engineering courses of study under the Jawaharlal Nehru Technological University and Osmania University will be common and will be made by the Admissions Committee appointed by the two Universities on the basis of merit in the Common Entrance Examination to be held on Sunday 17th August, 1980.

3. APPLICATION FORMS

Application forms can be had from any one of the following :

- (i) Principal, Osmania University College of Engineering, Hyderabad-500007
- (ii) Principal, College of Engineering, Anantapur-515002
- (iii) Principal, College of Engineering, Kakinada-533003
- (iv) Principal, Nagarjunasagar Engineering College, Hyderabad-500488
- (v) Principal, College of Fine Arts & Arch., Hyderabad-500488
- (vi) Principal, Osmania University College of Technology, Hyderabad-500007
- (vii) Convener, JNTU & OU Admissions Committee, Hyderabad-500038

on requisition, enclosing

(a) A Demand Draft on any scheduled bank for Rs. 10/- towards cost of application form payable at Hyderabad to Convener JNTU & OU Admissions Committee, Hyderabad. Money Orders, Postal Orders, Cheques or Cash will not be accepted.

(b) A self addressed envelope of size 25 x 12 cm. (9 in. x 5 in.) with postage stamps of Rs. 2.75 affixed.

4. Sale of Applications will commence from

Last date for sale of Applications

Last date for receipt of filled-in application forms either by post or in person

Date of Entrance Examination

1-7-1980

26-7-1980

31-7-1980

Sunday 17-8-1980

5. Further particulars can be seen in the "Instructions to the Candidates" supplied alongwith the application forms.

6. All correspondence regarding Entrance Examination and Admissions shall be made to :

Convener, JNTU & OU Admissions Committee
C/o Jawaharlal Nehru Technological University

"Examination Cell"

7-1-619/A/3/2, Srinivasanagar East Colony

Hyderabad-500038.

Convener
ADMISSIONS COMMITTEE

THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

SOCIAL SCIENCES

Psychology

1. Bhatia, Sati. A psychological study of the changing patterns of marriage and family institutions in Hindu society. Agra University.
2. Bhatnagar, Meenakshi. A study of children's problem solving and decision making strategies. University of Delhi.
3. Girija, P.R. A study of intellectual and non-intellectual factors in academic achievement of advantaged and disadvantaged students from professional colleges. Karnatak University.
4. Malik, Saroj. Personality correlates of real and ideal self-concept of teacher trainees. Agra University.
5. Nimkar, Bapurao Vithuji. Inter-personal perceptions of classes of professionals: A study of stereotypes. Nagpur University.
6. Sinha, Surat Pyari. Feeling of security and self-concept as factors in familial attachment. Agra University.

Sociology

1. Beliappa, Jayantni. A sociological study of the religious concepts of the Coorgs. University of Delhi.
2. Brejesh Chandra. Unemployed graduates of Agra: A sociological study. Agra University.
3. Gupta, Uma. Status and role of educated working women of Agra. Agra University.
4. Khan, Masood Ali Khan Mohsin Ali. Social change among the Muslims of Aurangabad City. Marathwada University.
5. Purushottam Das. A sociological study of an immigrant community in a metropolitan city: Sindhis in Kanpur. Agra University.
6. Rajwade, Krishna. Status of Muslim women in Indore City. University of Indore.
7. Rukobo, Andries Matenda. Land, class and dominance in North-Western India: Social structure, agrarian relations and change in a Muzaffarnagar village, Western Uttar Pradesh. Jawaharlal Nehru University.
8. Sati, Parma Nand. Retired people—their life style and problems: A study of retired people in the city of Udaipur, Rajasthan. Agra University.
9. Saxena, Urnila. A sociological study of Sansiya tribe of Uttar Pradesh. Agra University.

Political Science

1. Bakshi, Manhar J. Political ideas and institutions in Yajnavalkya Smriti. University of Indore.
2. Chopra, Monica. Right to property in India: A study in socio-economic justice. University of Delhi.
3. Kagalkar, Pratibha Chandrashekar. Nehru: A study in Indian socialism. Marathwada University.
4. Naqvi, Syed Qurban Ali. Socio-economic mobility and political participation: A case study of Amroha constituency. Jawaharlal Nehru University.
5. Ram Avtar. Organisation and working of Panchayati Raj in Gurgaon District, Haryana. Agra University.
6. Sharma, Chandra Prakash. Role of the opposition in the Indian Parliament, 1962-70. Agra University.
7. Sharma, Rajiv Lochan. Coalition Government in the states of Indian Republic: A critical study with special reference to U.P. Agra University.
8. Tripathi, Kapil Deo. Concept of lokniti in Sarvodaya philosophy. Agra University.

Economics

1. Bhattacharyya, A.B. Socio-economic impediments of economic growth in India. Agra University.
2. Joshi, B.H. Impact of green revolution on small and big farmers in Saurashtra with special reference to Dhoraji Taluka. Saurashtra University.
3. Patil, Jaykumar Fajgaunda. Level and composition of taxation in Maharashtra in the context of planned economic development 1961-62 to 1975-76. Shivaji University.

4. Rede, Arun Lata. Structure of profit rates in Indian manufacturing industries. M.S. University of Baroda.

Education

1. Aruna Rani. Psychological study of musically gifted girls at school and college level. University of Jammu.
2. Gangaiah, N. A critical study of English teacher education in Andhra Pradesh. Karnatak University.
3. Paintal, Iris Clara. Evaluation of microteaching and other recent innovations in educational technology. University of Delhi.
4. Parmar, Dolatsinh Naharsinh. A case study of Vallabh Vidyanagar as an educational complex with reference to special role of Dr B.D. Patel (Baikaka). Sardar Patel University.
5. Patel, Gordhanbhai Haribhai. An investigation to study the attitude of the teacher educators towards the programmes of non-formal education leading to life-long education in the state of Gujarat. M.S. University of Baroda.
6. Ray, Prafulla Kumar Sreechandan. Effect of various treatments on the acquisition of teaching skills through microteaching. M.S. University of Baroda.
7. Satapathy, Amulya Kanti. Self-actualization among teachers of higher secondary schools in Delhi. I.I.T., Delhi.

Commerce

1. Agarwal, B.K. Flow of capital incorporation enterprises (Private sector) in India since 1956. Agra University.
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